TangIn Project – Converging tangible programming, STEM and inclusion

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The TangIn[1] Project emerges from a network of partners, with distinct profiles, connected to businesses, universities, schools and other educational institutions from 4 European countries: Bulgaria, Latvia, Spain, and Portugal.

Pursuing a true iterative and R&D approach, this consortium co-created, co-implemented, co-assessed and co-reformulated the *TangIn toolbox*, which integrated a teacher's handbook[2] and a set of lesson plans[3] designed for elementary education[4], focused on tangible programming, as a captivating, fun, playful and collaborative support of a STEM (*Science, Technology, Engineering e Mathematics*) curricular approach, in an inclusive perspective. The development of these documents occurred cyclically, thus leading to successive reformulations of the Kit – Desk research, literature review and the application of an international questionnaire; Creation of a first draft of the didactic kit; Testing of the Kit in a real Portuguese scenario; International TangIn course and final version of the teachers' training handbook[4]; Testing of the results in real scenarios in all countries; Development of the final teachers' package; National dissemination events in all of the involved countries. The international TangIn course was led by the University of Aveiro and the trainees became "TangIn embassadors", promoting multiplier training events, disseminating the project among teachers, researchers, businesspeople, and political decision makers.

The results highlighted i) the advantages in using this methodology to achieve the final product and also ii) the importance of the tasks for the development of computational thinking skills in STEM as well as in the inclusion of the children involved. During the extension of the project one intends to assess the sustainability of the achieved results, especially regarding the adaptation and/or recreation of the toolbox content and its consequent exploration by other professionals with interest in this area.

FIGURE 1
International TangIn course.

FIGURE 2
Tangible programming in real Bulgarian, Latvian, Spanish, and Portuguese contexts.

[1] http://www.tangin.eu/
[2] http://www.tangin.eu/download-area/
[3] http://www.tangin.eu/lesson-plans-toolbox
[4] Elementary education is different in the countries involved but includes children aged 6 to 10.
[5] http://hdl.handle.net/10773/27302